AMERICAN VETERINARY REVIEW,

NOVEMBER, 1891.

EDITORIAL.

IS THERE A DARK AGE COMING?—Not many years have elapsed since veterinary science had its advent and its representatives began to receive recognition on the American continent. The health and comfort of our domestic animals had always been entrusted to a class of men who lacked almost every qualification for the work they choose to undertake, and it is a literal fact that the title of "horse doctor" was a term of contempt—a stigma upon a man's respectability. The fact is a curious one, but it cannot be contradicted, that when a man undertook the business of alleviating the sufferings, though he at the same time increased the value of the domestic animals, he rather than otherwise, assumed an inferior social rank, or was consigned to it by his fellows. But at length it began to be suspected that this was all wrong, and the self-sacrifice and enterprise of a few gentlemen who were fully qualified for the task, and who soon demonstrated the fact that veterinary science is indeed a science, and requires in its members qualifications fully equal to those of the practitioner in human medicine, opened the eyes of intelligent people to the infamy of the old state of things, and the necessity for a revolution. And at length the point was reached of establishing schools for the equipment in all the necessary accomplishments of knowledge and training, of a community of *veterinary scientists*, not merely so called, but so indeed. The interest which the inauguration of the first schools excited was of a varied and contradictory character. Of course not many felt

any concern whatever in the subject, or had any knowledge of it, while of those who gave any thought to the matter, some cast ridicule upon the idea of having educated "horse doctors," some appreciated the importance and the value of the suggestion, and some indulged in a little, perhaps, excessive enthusiasm in anticipating early results. And amongst them all were those who are always to be found when a serious and earnest purpose is needed to accomplish a good and useful work—men who without being moved by any effervescent excitement, or making any demonstrative exhibition of zeal, quietly and resolutely assumed the burden of the enterprise and bore it forward over every impediment and against every opposition, to the success of which to-day they may honestly be proud.

That the movement has at this period accomplished all that is to be desired or is attainable, no one will pretend; much remains to be done, and certainly American veterinary science has gained nothing that it can afford to relinquish—it has not traveled so far on the road of improvement and mature development that it may safely come to a standstill, and cry a halt; much less can it venture upon a retrograde movement.

The revolution is a success, and there is a proverb which affirms that revolutions never go backward. And this one has not stood still. There is a demand for new schools; agricultural colleges are creating them; old universities are instituting veterinary departments, and States are enacting laws for their organization. Until recently it has been necessary to seek veterinary education in the Eastern States, but the West, with its increasing need in this respect, has claimed her share of facilities, and it is now not necessary to travel far or long to find them.

Yes, the revolution in veterinary practice in America is a success, and all we want now is more of the same kind. Yet there are discouragements. We hear a cry of danger, and we fear there is a severe struggle coming between the true friends of veterinary science and those who are moved by mere mercenary considerations, and would so combine business objects with the promotion of veterinary science as to inflict irreparable

evil upon the latter. We would like to be convinced that the cry of danger is a false alarm, but what are we to think when we hear of the contemplated establishment of new schools, in which the investment of capital for speculative purposes is a leading incident, and a faculty is appointed containing not a single veterinarian of education, and with an empiric at its head to "run the machine?" If this thing has not happened in one of the Northern States, so much the more to the credit of Michigan, or some of her people. And if a college has not been started or contemplated by mere capitalists in another Northern State, so much the less to the discredit of Ohio, or some of *her* people. And what is to be the character of the "Toronto Veterinary Dental School," (LIMITED) which claims to be located in that city, with . . . . V.D. for principal? Shall colleges be established which are merely diploma-shops and veterinarian factories, and which offer as inducements to catch the "trade" of "customers," the cheapening and popularizing of our standard of qualifications, in order to make it easy to "get through?"

Shall we veterinarians who love our profession, and who appreciate our calling and its requirements, stand by silent and inert, and permit a state of affairs so disgraceful to continue, without at least a protest and an effort to put an end to it?

For years the United States ignored the value and deprecated the standing of the veterinarian, but after so long we have obtained a shadow of recognition at her hands, and we do not like to contemplate the prospect of losing the little we have gained. Let us by all possible preventive means ward off the threatening danger. It is the duty of every veterinarian to watch the work of the parasites who would ruin a noble cause by assuming to identify themselves with its name and its mission. Would that we could inspire every true veterinarian in the land to combine with his fellows in an effort which should never cease until our most honorable profession is established upon foundations which can never be shaken, and then we should never more have occasion for apprehension of the approach of "A DARK AGE."

PROFESSIONAL INCREDULITY.—It must cause a feeling of regret to earnest veterinarians to see the very evident incredulity and want of common dependence and faith between veterinarians of different nations or different parts of the same country, or even between neighboring veterinarians engaged in the same line of work. Every journal seems to bear an imprint of some petty jealousy on its pages, and it seems almost impossible to carry on a veterinary association without its meetings being made an airing-place for some undue rivalry. Why is it that we can not, as scientists, accord our co-laborers respect, confidence and esteem?

In the *Veterinary Journal* for Oct., p. 260, Dr. Fleming, in a well-made editorial, prepares the British veterinary profession for a condescension which American veterinarians have long known they would be ultimately obliged to make, and which some few British veterinarians have foreseen, notably Prof. Williams, of Edinburgh. The veterinarians and the government of the United States are fully aware of the importance of our export trade in cattle, and know full well that its value must rest upon the health of the animals offered to foreign consumers, so that it would be a suicidal policy for us to export animals affected with a serious contagious disease.

It has always been asserted, and truthfully, so far as we can yet learn, that contagious pleuro-pneumonia has at no time existed in the cattle-producing area of this country, but has been limited to the dairying districts of the Atlantic seaboard, to a few isolated herds of breeding animals, mostly Jerseys, in some of the western States, (and these were derived from the eastern dairying districts), and to the well known outbreak among distillery cattle and dairy cows in Chicago. The disease has not found entrance into the current of the beef cattle traffic of this country, and there is good reason for believing that it never will. This has been positively asserted and reasserted, and yet English veterinarians have openly disbelieved us, and to prove that we are either incompetent or dishonest have persisted in finding contagious pleuro-pneumonia (?) among our export cattle landed on their shores, and stoutly maintained the correctness of their opinion against our

assertions, and those of Prof. Williams and a few others, that it was not the genuine dreaded lung-plague which they had found. Recently, a few cases of this American broncho-pneumonia reached France in an export cargo, and at first the French veterinary officials suspected lung-plague, but upon a more careful inspection of the affected parts were led to believe that it was some other form of pneumonia, as yet new to the veterinary profession of France, and experiments upon other animals fully demonstrated the correctness of their views, so that so high an authority as Prof. Nocard, of Alfort, states positively that it is not lung-plague, and that in his opinion it is of no moment from a veterinary sanitary-police standpoint.

Clinical and post-mortem observations of this disease have been sufficiently abundant in this country that the matter has been for some time quite clearly settled, and a clear differentiation made between these two pneumonias here, and it has been sufficiently discussed in our veterinary journals, that had British veterinarians seen fit to read and believe careful scientific contributions, the long dispute might have been promptly adjusted; but British veterinarians do not read American veterinary journals, and British veterinary journals quote but scantily from our current literature. Fortunately, owing to early habits, before our own journals were well established, American veterinarians are liberal readers of British veterinary literature, but our journals are entirely too penurious in their quotations from these. A more liberal and cordial spirit on the part of both would doubtless prove of mutual benefit.

Again we have a suggestion of this incredulity in the same number of the *Veterinary Journal*, on p. 272, under the caption of "A Supposed New Disease Among Cattle in the United States of America," in which it is cited that some learned British associations are greatly alarmed over threatened invasion of contagious foot and mouth disease through the importation of American cattle; and all this alarm in the face of positive assertions that we have no such disease in this country. To be sure, we have a few hot-headed, erratic men,

like all countries, who periodically find something of unusual importance, and at once load it upon the telegraph wires, but sober judgment by sober heads promptly do all they can to place matters in their true light. We know that we have quite extensively in the Mississippi valley a peculiar affection of the feet and mouths of cattle, mostly of milch cows, which has occasioned some loss. We saw it for a few weeks in late summer and fall of 1890, when it suddenly fell like some blight over a whole State at once, and then suddenly disappeared as mysteriously as it came. A few weeks ago it again appeared, the same as before, we know not from whence. It has none of the characteristics of the contagious foot and mouth disease, and repeated attempts at transmission have uniformly proven unsuccessful. It seems quite unnecessary for Britishers to become alarmed so long as inoculation from animal to animal gives negative results.

When we had contagious pleuro-pneumonia in Chicago we detected it, notified the civilized world of the fact, said we would stamp it out, did stamp it out promptly, and notified the world that the work was finished, and it *was* finished. When we have a serious contagious disease among live stock we recognize it and openly admit it, and after we have eradicated it we say so, and desire that such assertion shall be accepted as fully as our admission of the existence of the disease. Many of our veterinarians are drawn from England, France and Germany, so that in case of an extensive outbreak of disease we nearly always call in an available M. R. C. V. S., who after a pupilage in England, the source from which nearly all animal scourges flow, is quite competent to diagnose pleuro-pneumonia or foot and mouth diseases.

But this incredulity is not all international, and what we have of it here at home is no more to be prized than that we have already considered. After every animal of the bovine species in the infected area in Chicago had been slaughtered to stamp out pleuro-pneumonia, and every cow-shed had been demolished or disinfected, and the disease had been searched for in every part of Illinois, several western States, through their veterinarians, maintained rigid quarantines against Illi-

nois cattle. They would not believe that the cattle population of the entire infected area of Chicago had been annihilated without actually seeing it, and being too busy to leave their posts of duty the only way left to convince them was to take the infected area to them, along with the scalps of the victims of the stamping-out process.

At about this same time we had an extensive outbreak of dourine or equine syphilis in Illinois, and after all exposed animals had been placed in strict quarantine, and nearly all the diseased ones had been destroyed, certain western veterinarians advised quarantine against Illinois horses, when by shipping the remnant of these diseased animals into another State and thence into the prohibiting State, these veterinarians would, upon inspection, have passed them as sound, so slight were the evidences of disease. The Illinois authorities knew every dangerous animal and held it fully in hand, had the history of each exposed individual, and the veterinarian in charge, by his experience, was able to detect very slight evidence of disease, so that the country at large was rendered as safe as possible, and far more safe than any restrictions that could have been imposed by other States would have secured. Still the veterinary-police authorities of Illinois were not trusted by some.

Another evidence of incredulity, born of unworthy jealousy, is noted among our investigators of animal diseases. Ever since the creation of the Bureau of Animal Industry there have been two distinct parties in the investigation nominally of animal diseases, but really they have been mainly trying to show that the other party is in error. Criticism is good ; adverse criticism is excellent, and any work that will not bear it is worthless. But adverse criticism which has for its sole end annihilation is anarchy.

The bickerings and disputes between our Bureau and outside bacteriological investigators frequently become nauseous and have a tendency to remain so. The disputes we have witnessed over the etiological moment of our diseases of swine have not been of a character calculated to demand admiration from unbiased critics. If the conclusions of the

Bureau of Animal Industry on swine diseases are erroneous, the right thing to do is to break them, but first get through with the annihilation and then shout.

Three or four years ago the Bureau was reported as entirely routed, and all its conclusions overthrown by the discovery of an available (secret) vaccine or protective inoculation for hog cholera, but the disease seems just as prevalent as ever, and no one seems to know the place where the great secret of protective inoculation lies buried.

And now from the same laboratory the news is flashed over the wires that again the Bureau is routed, and all its conclusions as to Texas fever totally upset by the discovery of the specific micro-organism; that the discoverer knows how to breed it, and has transmitted the disease by means of his cultivated stock. Just what conclusions of the Bureau are thus upset is not stated, nor are we told what effect this new meteor will have on the Bureau or the health of its chief.

All veterinarians are glad to learn of this discovery, as the United States is annually spending large sums for the express purpose of finding this germ, and it will form the basis for some possibly available remedy in the future. Meanwhile, we are breathlessly awaiting an accurate description of this wily germ, its earmarks, how it is to be recognized, how cultivated and where found

But could we do away with petty jealousies and have some mutual confidence and esteem for each other and the work of each other, and cease making the destruction of the work of others our sole aim and ambition, it would be worth more than a photograph of the bacillus of Texas fever.

W.

NOTICE.

The fourth annual session of the Iowa State Veterinary Medical Association will be held in the parlors of the Savery House, Des Moines, Iowa, November 12th and 13th, 1891.

S. STEWART, D.V.M., *Secretary.*

ORIGINAL ARTICLES.

KOCH'S TUBERCULIN.

REPORT OF THE TUBERCULOSIS COMMISSION OF THE VETERINARY DEPARTMENT, UNIVERSITY OF PENNSYLVANIA.

In the beginning of the present year a commission consisting of members of the veterinary faculty was appointed by the University of Pennsylvania for the purpose of experimenting with Koch's tuberculin, with the object of determining its properties as a therapeutic agent, its value in diagnosis and its power as a prophylactic. The experiments, however, were especially directed towards determining the diagnostic and therapeutic value of the remedy. The experiments were conducted in the university veterinary hospital with tuberculin obtained directly from the laboratory of Dr. Libbertz of Berlin. In the investigation it was found that tuberculin reacts best in comparatively strong and vigorous animals where the disease is well advanced, but where the disease is limited, or in its incipiency, a larger dose is necessary to produce a reaction.

When a reaction occurs, it comes on in from five to eight hours after the injection of the tuberculin, and reaches its height in from twelve to sixteen hours; then the temperature gradually decreases to normal. By the reaction is meant a rise in temperature of from three to five degrees Fahrenheit, acceleration of pulse and respiration and, in short, a general febrile disturbance. In none of the animals treated with the tuberculin was there a loss of appetite or of rumination, except for a few hours during the time when the fever was at its height.

The milk did not appear to be disturbed either as regards its quantity or quality. In one case, No. 5, it will be noticed that the temperature dropped below normal, and remained so for three or four hours; in others again it remained permanently higher than it was before the injection of the tuberculin, as shown in No. 4.

As to the quantity required to give a reaction, it will be seen that in case No. 3 1,000 milligrams were needed; while in case No. 4 a good reaction was obtained with 100 milligrammes.

CASE NO. 1.—This case was a registered Guernsey calf, eight months old, condemned because of its having tuberculosis and presented to the Commission for experimentation. The animal being young, strong and vigorous, and in the early stage of the disease, it was considered an exceptionally good case in which to test the curative properties of the remedy. The temperature of this animal was normal, as were also the pulse and respirations and, to all external appearances, it was a perfect animal.

On April 3d, 1891, at 10 a.m., this animal was given a hypodermic injection of 100 mg. of tuberculin under careful antiseptic precaution; the temperature then registered 101$\frac{3}{5}$°; five hours afterward it registered its highest point, 102$\frac{3}{5}$°, this was at 3 p.m.; at 6 p.m. it had dropped to 100$\frac{2}{5}$° and afterwards fluctuated between 100° and 102°. Not the slighest physical disturbance could be observed in this animal. These injections were made once a week until May 5th, and in no instance were there visible manifestations indicating the action of the remedy. May 5th the animal received 75 mg. of tuberculin, highest temperature 102$\frac{1}{5}$°; May 6th received 75 mg., temperature reached 103°; May 7th, 75 mg., temperature reached 104°; May 8th, 75 mg., temperature dropped to 102$\frac{4}{5}$°.

For the next six weeks this animal received 75 mg. tuberculin daily. The temperature continued to gradually decrease until it remained stationary between 101° and 102°. There was no disturbance of the economy other than the rise of temperature, and when repeated injections failed to have an influence in this respect, and the treatment had continued for over three months, the injections were discontinued.

August 5th, the animal, while presenting no abnormal symptoms, was killed and an autopsy made, in order to ascertain the results of the treatment. Prior to death, physical examination revealed nothing but a very slight bronchitis.

The autopsy showed a well marked miliary tuberculosis, and numerous abscesses throughout the lung, varying in size from one-quarter to half an inch in diameter, filled with cheesy pus. The mediastinal glands were several times larger than normal and had entirely broken down into a cheesy mass.

Evidences of lobular pneumonia were found in different parts of the lung. The general distribution of these lesions indicated an active stage of tuberculosis.

These facts certainly indicate that the tuberculin had no effect in curing the disease or even in arresting its progress.

CASE NO. 2.—This was a five-year-old cow, weighing about 700 lbs. When taken into the hospital her temperature was 104⅖°, pulse 114 and respiration 48, shallow and painful; from this time the temperature began to decrease, the pulse and respiration remaining unchanged. The animal died four days after admission, but, twenty-four hours before death, received 100 mg. of tuberculin, from which no reaction resulted. Autopsy showed traumatic pericarditis and pleurisy, no evidences of tuberculosis.

CASE NO. 3.—This was a roan cow eighteen years old and well nourished; supposed to be healthy with the exception of a slight chronic bronchitis. Temperature, pulse and respiration were normal. The injection of 100 mg. of tuberculin produced no reaction. After an interval of one week, 500 mg. were injected without producing a reaction. At the expiration of another week, March 25th, 1,000 mg. were injected; twelve hours afterward the temperature had risen to 104°, thus furnishing a typical reaction. It was noticed that when a marked reaction occurred the temperature remained permanently higher than before; in this case, instead of dropping to normal, it fluctuated between 101° and 102°. On the 4th of April this cow again received 100 mg. of tuberculin, with no reaction.

The autopsy showed very little change on the exterior of the lung; section of this organ, however, revealed miliary tubercles disseminated throughout the lung substance. The anterior and posterior lobes of both lungs contained several abscesses varying from the size of a hazel nut to that of a

hen's egg, and filled with semi-fluid cheesy pus. The mediastinal lymphatic glands were much enlarged and filled with dry material. A few miliary tubercles were found on the intestines.

CASE NO. 4.—This was a red cow, five years old, in fairly good condition, temperature varying from 101° to 102°, pulse from 50 to 56, respiration 40, cough frequent. Diagnosis: Tuberculosis.

On Feb. 27th injected 100 mg. tuberculin. Ten hours afterward the temperature reached 103⅖°, dropped to 102° and again reached 104°, the second reaction taking place within twenty-four hours after injection. On March 3d injected 300 mg. at 9 a.m. At 2 p.m. the temperature was 104⅗°, dropping in the next nine hours to 102°, and continuing to fluctuate between 102° and 103°, and also remaining permanently higher in this animal than before the inoculation. Autopsy: Right lung filled with large cheesy deposits and numerous cavities. The middle portion of the lung contained large areas of miliary tubercle, apparently of recent formation and associated with a lobular pneumonia. The left lung presented the same general condition as the right. The pleura, both parietal and visceral, was covered with masses of tubercular pearls, as were also the diaphragm and pericardium; in short, the entire serous membrane of the pleural cavity was covered with these growths. The mediastinal glands were enormously enlarged and cheesy in character. The larynx and trachea presented a well marked case of tubercular disease. Many of the tubercles had broken down into ulcers. The pericardium contained several groups of tubercular masses, some of which were found on the valves and under the endocardium. In the abdominal cavity the entire peritoneal membrane was one mass of pearl disease which had extended to the mucous membrane of the intestine and had produced numerous ulcerations. The uterus contained a fœtus in the right horn, several of the maternal cotyledons had broken down, forming cheesy masses between the maternal and fœtal placentæ. The corion and cord presented a number of pearl-like bodies of various sizes apparently tubercular. The fœtus was also

apparently tubercular. (The microscopical examinations of these tissues had not yet been completed.)

CASE NO. 5.—A two-year-old Guernsey heifer in the early stage of tuberculosis (diagnosis made from the history of the case.) On the 9th of March injected 300 mg. of tuberculin. The temperature of the animal when inoculated was 100 degrees; five hours afterward the temperature began to rise, and in eight hours reached its highest point, 105⅖°. It then began to fall and at the twentieth hour had dropped to 99° degrees and afterwards fluctuated between 101° and 102°. A second injection of 500 mg. was made on the 25th. This increased the temperature in twelve hours to 105⅘°. Twenty-four hours afterward it had dropped back to 99⅘°. The autopsy examination showed a few small tubercles in the lungs, the latter showing evidences of having undergone retrograde change. Several spots of lobular pneumonia, the largest about the size of a man's fist, were found in the central part of the posterior lobe of the left lung. The pleura presented large masses of miliary tubercle in every stage of development, from the earliest to the calcareous degeneration. Pleuritic adhesions to diaphragm and to chest walls on both sides. Resting upon the sternum was a large mass of cheesy tubercle adherent to both diaphragm and pleura.

The mediastinal glands were of enormous size and had undergone cheesy changes. The peritoneum presented a large number of tubercles at various points and in numerous stages of development; tubercular enteritis well marked. In the lumbar region, along the course of the blood vessels, were a number of dark red tubercles, which, when cut, exuded a dark fluid. Probably this was one of the earliest stages of tubercular formation. The liver, spleen and kidneys were apparently normal.

CASE NO. 6.—Was a black cow five years old, well advanced in tuberculosis. At the time of injection, and for several days previous, the animal was very much depressed, pulse not perceptible at points where it is usually taken, extremities cold, respiration thirty-eight per minute and labored. Head extended; animal very weak and in a generally distressed con-

dition, appetite poor, temperature from 102½° to 103°. An injection of 300 mg. of tuberculin increased the temperature to 104⅕°. The animal was killed three days after injection. Autopsy showed all the organs to be more or less markedly affected with tuberculosis. Well marked pharyngitis was noticed.

The following conclusions are given, based upon the results of the experiments:

1st.—That the injection of tuberculin in cows suffering with tuberculosis produces a febrile reaction.

2nd.—That healthy cows do not give a reaction with moderate doses (300 milligrammes).

3d.—That in some instances, tuberculous cattle will fail to give a reaction with ordinary doses of from 300 to 500 milligrammes.

4th.—That injection of the tuberculin causes the rapid distribution of the tubercle bacilli and a generalization of the disease.

5th.—That in none of the tuberculous animals used in the experiments could the least curative effect be observed.

6th.—That cows cease to react after repeated injections of the tuberculin.

7th.—That tuberculin is of value in the diagnosis of tuberculosis in cattle.

BURSATTEE.

By S. E. Phillips, V.S.

(A Paper read before the Kansas Veterinary Medical Association.)

In selecting this as my subject upon which to make a few remarks, I have done so more with the view of learning others' experience with the disease, than it was to tell you what little I may know about it. And for this reason I shall hope merely to open the way for discussion, which I trust you will take advantage of and I may feel that my efforts have not been in vain.

Bursattee being a disease that is unsatisfactorily explained

and its true nature a mystery, we who have to deal with it in our daily practice should not be content until the vail that now overshadows it may be removed, and if possible that we might receive part of the credit.

Bursattee derives its name from "Bursat" meaning rain; it was supposed to be most prevalent during the rainy season of the year. It has also been called "Rain Sores" for the same reason, but as far as my observation goes, the rainy part of the season has but little to do with the disease, other than this; horses are more subject to injuries then than during dry weather; the harness of horses worked through all kinds of weather becomes wet, muddy and hard and has a tendency to chafe; or the animal may become leg wearied, causing it to interfere, inflicting a wound which in that locality readily admits bursattee germs. It seems that the first bursattee sore an animal has originates from a simple wound becoming inoculated with these germs, or on those animals affected last year, the old sores have only to be irritated by the harness or otherwise, and bursattee sores or ulcers result. I think that you will agree with me that while the rainy season of the year has its influence indirectly in bringing about these sores, the time of the year has more to do with it. Animals suffer from these sores only about three months out of twelve. Curious to know the months it is most prevalent, I referred to our books for the past three years, and find we received a few cases for medical treatment during the last days of June and that it was only a few of the chronic cases that we received after September first, the months of July and August being the principal months. During these months flies are so numerous, the question naturally arises are they the means of spreading the disease from animal to animal and from sore to sore? It is my belief that flies can carry these germs from a bursattee sore, and deposit them into a healthy wound, and unless removed soon by surgical interference will be there to reappear the following season, between June fifteenth and September fifteenth, whether it be a rainy season or a dry one, just so there is enough irritation produced in any way to cause their growth.

I know of no sore that flies have such a particular liking for and it is only by force they are induced to leave, or if allowed their privilege they will stay on these sores in the evening until it becomes quite dark.

As fall approaches flies diminish in numbers, our burasttee patients dininish, the ulcers take on a much healthier action, and although slow in healing before cold weather is upon us we have no more bursattee sores.

There seems to be an itchy sensation associated, and in treating some patients it is almost impossible to secure them that they may not rub the parts, even though the animal be in a dark place and the parts protected from flies. If the animal does not rub the parts and flies are not permitted their liberty, they can be healed quite readily.

Horses and mules alike and under all conditions, whether in perfect health or otherwise, seem to be susceptible to the disease. It is not confined (as some suppose) to animals that are half fed and cared for or housed in poorly ventilated quarters, but on the contrary, it does appear on horses having the best of care and in good flesh. All that is required during its particular season is a wound to gain a foothold, be it on a private driving horse or a street car mule, and then to be neglected by the owner and the result is evident. This sore enlarges and by allowing the animal to rub the parts new ones develop, which coalesce with each other until quite a surface may become involved. The pride that most people have for their private horse enables them to render assistance sooner and care for them better than animals owned by companies. This, with the knowledge that they are not subject to as many injuries, are the reasons we haven't more bursattee sores on private driving horses.

There are a great many theories advanced as to the true pathology of this disease, but when we find that none are fully substantiated we will content ourselves with Prof. Robertson's definition for it. "That it depends on a state of the system not yet defined which he called bursattee diathesis." The first appearance of these sores is characterized by the formation of small soft nodules, either one or many situated

directly under the skin in the cellular tissue; they vary in size when first noticed from a small pea to twice that size. In a few days they become hot and painful to the touch, and have changed from a soft tumor to a hard one; as they grow they become attached to the skin; from this stage on their development is very rapid, and is hastened should the animal rub or the harness chafe the parts. They ulcerate rapidly and discharge a thin yellowish fluid. The sore has a very unhealthy appearance and is usually circular in shape and the same size as the former enlargement. The edges of the wound are raised and ragged in appearance. This ulcerative process seems to undermine the skin surrounding the ulcer, and extending still outside of this we find a dense fiberous tissue, so that in looking upon a sore they do not appear as large as they really are. They are very maligant in nature, and enlarged by these ulcers becoming confluent. Situated on the floor we find little hard eminences called "Kimhers;" they are composed of lime deposit and are very hard. By analysis it has been shown that they contain about ten per cent. of inorganic matter, principally phosphate and carbonate of lime. Their color, as near as I can describe them, is cream white. They vary in size from a millet seed to a hickory nut, and their shape that of a coral with sharp nodules sticking out in every direction and shape. These kimhers may be removed from their place of concealment with a point of a knife, or at times with the thumb and finger. Their growth is very rapid; all of any size may be removed to-day and in three or four days there are just as many there as before. The floor is also covered with a dark red jelly-like substance, which has a very unhealthy appearance. With such an unhealthy looking ulcer, and having this deposit of lime salts, which is diagnostic of this particular kind, there is no chance of being mistaken as to the kind of sore it is. The papilla that covers the floor bleeds easily. The discharge from a bursattee sore, if allowed to flow down over a healthy surface and not washed off frequently, will by the aid of flies, make the parts raw and we have small bursattee sores appearing along its course, which if not molested will increase in size, eventually become confluent

one with the other until a large surface may become involved. Another way that seems to favor their development is when a scab is left to cover them; it will then have a very offensive smell, kunkers then not only form on the floor, but also around the edges directly under the skin. The scab, while it offers partial protection to the sore from flies, also affords a rich field for the development of kunkers. The healing process is very slow; ulceration and cicatrization may both appear in different parts of the same ulcer.

It is not very difficult in examining a horse to tell if it has been affected with bursattee; they always leave scars which are diagnostic. The size of the cicatrix varies as to the extent and kind of treatment the wound has had; it will be destitute of hair, with a gray, shiny appearance; it also has much the appearance of a scar caused from a burn. The parts most subject are those most subject to injuries, as the corner of the eyes and face, angles of the mouth, the shoulders, the legs from the knee down, and in fact there seems to be no part of the body exempt, and in Prof. Robertson's work he speaks of their being found in the internal organs, but I have not had the chance of holding post-mortem on a subject that was affected during life. Having over two hundred street car mules under our charge for the past three years has given a good general knowledge of the disease, such as the part of the body most subject, the time of the year animals are most affected, the certainty of its reappearing the following season and its increased severity, the conditions favoring its development and a little knowledge of the best mode of treatment.

Taking the fetlock joint, which is a very common place caused by interfering, we may have the inside half diseased, and when it heals in the fall there will remain quite an enlargement. During the winter months the horse may wound these enlargements to any extent and they immediately take on a healthy action the same as any simple wound, but during the summer months the wound may be ever so small and the result will be a bursattee sore. The germs of disease are there and when the proper time of year comes

and they have had the desired amount of irritation, they grow, and each year new ones appear on different parts of the body until the animal may appear a pitiable sight.

The general health of animals suffering of this disease is but little impaired. I am sure the disease if left alone will cause death, and perhaps in a very few years, but I have not had the privilege of following a case thus far, and have not heard of such a death, uuless the death of an animal reported to us last summer was caused by them. The subject was a family pet, a nice young mare. She was brought to us for treatment three years ago last spring. It was quite an aggravated case; most of the ulcers were confined to the legs from the knees down. By using the knife freely she made a nice recovery. The owner was advised to dispose of her some time before next summer; his wife objecting, and he, himself, not feeling much inclined to part with her, concluded they would chance it again. The result was that at about the same time, the sores appeared again the same as the previous year, only very much worse, and were not confined to the legs only, but appeared in many other places. It was after they had exhausted their skill in trying to effect a cure that she was again brought to us. It was with much difficulty this time that we healed the ulcers. The owner was again advised to dispose of her at any price. The winter passed, spring came, aud they still had their pet. Feed being scarce, he decided to turn her out on his ranch, located about thirty miles away, until in the summer some time, when he intended to bring her home. When the proper time came the sores again made their appearance. The owner met me on the street and said he had just received a letter from his man at the ranch saying these sores were worse than ever they had been. The animal was down and could not get up. I learned afterward the animal died. These sores, I think, were the cause of her death.

TREATMENT.

In treating a bursattee sore we find it a very difficult task and shall continue to find it so as long as the true pathology remains a mystery.

As a preventive treatment, which I think is very essential, especially during the months of July and August, there are many things to be considered. The harness should be made to fit, the subject should be shod to prevent interfering, the eyes protected from the annoyance of flies, fresh wounds should be treated antiseptically, after which some kind of oil should be added, or anything that is distasteful to flies; in fact, there is no medicine that equals preventive treatment, and there is nothing neglected so much. The saying is about correct, that an ounce of prevention is worth a pound of cure, at least in this particular disease.

Animals affected should be placed in a dark stall away from flies, and to commence treatment it is almost impossible to accomplish anything without first using the knife, and that quite freely. I have tried picking these kunkers out with some sharp instrument and then scraping the floor with a knife and cauterizing it with caustic, and following up with antiseptic treatment, but generally speaking this mode of treatment is a comparative failure; it takes too long to effect a cure. All of these kunkers are not removed, and they continue to grow. The result is, you can remove some every three or four days for perhaps several weeks. The better plan is to place a twitch on the animal and you are ready to operate on any part of the body. Inject a solution of cocaine in and around the ulcer, and with a sharp scalpel remove not only the ulcer, but also the dense fibrous tissue that surrounds them. There is at times a tendency, owing to the relation of some of these sores with joints, not to get deep enough. The object should be to remove all diseased tissue at the first operation. After this is accomplished, cauterize the entire sore with lunar caustic, or you may use the actual cautery, and dress it daily with an antiseptic lotion, and after each dressing apply some kind of oil that will keep flies away, and in this way the wound may be left uncovered.

I prefer washing these sores twice daily with castile soap and warm water, following with the usual dressing. The antiseptic lotion we think works best in cupri sulphate, acid carbolic, glycerine, aqua ad qs. We then use an oil called

the Mexican Oil; it is very healing. It reduces inflammation, softens the parts, and seems to draw the kunkers, if any remain, to the surface. Besides, flies will have nothing to do with it so long as plenty of oil is there. We find that in commencing the treatment of these ulcers, if the knife has done its part, and by following about this mode of treatment, keeping the patient where he may not rub himself, they may be healed almost as readily as any simple wound. Another secret is, never cover with cloth or bandages, and not allow a thick scab to form; it should be removed each day, and if at any time the entire sore does not seem to be taking on a healthy action it should not be neglected, but with a sharp knife once more endeavor to convert it into a simple wound. It may be necessary in some neglected cases to remove several square inches of tissue, to entirely surround the diseased part, but this should be done, and if possible, at the first operation.

Last summer we had quite an interesting case brought to our hospital for treatment, it being an imported draught stallion. The owner said he tried everything he knew to effect a cure and gave it up in despair. He then eommenced corresponding with us. We mistrusted that they might be bursattee sores, and advised him brought to us. On examination we found them to be bursattee sores, two on the sheath and one that entirely surrounded the meatus urinarius. This one was a raw, ugly-looking ulcer which entirely disabled the horse from stud services. It bled quite easily, and caused much pain when the animal attempted to urinate. The knife was again used, in order to remove a portion of the urethea and glans penis; the parts were then cauterized, and our general line of treatment followed, and in two weeks he was sent home with the sores healed. I am anxious to know if it will appear on him again this season after dissecting it out so thoroughly and receiving such a speedy cure.

In examining horses for soundness, we should never omit to look for bursattee sores, and if any are found the animal should be considered unsound, knowing the eertainty of their reappearing each season.

During these two or three months of the year, if we are consulted about a sore an animal may have, it is easy to tell what kind of a sore it is from the owner's description of it. He will say, "I never saw anything like it. The longer I treat it the worse it gets, and now I am ready for some one else that knows more about the disease than I do to cure it for me." It is only necessary to tell him what it is and about the line of treatment necessary, and which you would follow if he is satisfied to let you have the case. But if the owner had this privilege of trying to cure it himself, it is best to let him alone. You are sure to get the case later on.

I have endeavored not to dwell at length on any part of this subject, but merely to open the way for discussion.

OPEN JOINTS—ANOTHER TREATMENT.

By C. B. AINSWORTH, D.V.S., Greensburg, Indiana.

Since reading the article in the September number of the AMERICAN VETERINARY REVIEW relating to open joints and a new remedy it stimulated me to write concerning another remedy, thinking some of the members of the profession might try it if they have not done so. My experience with the treatment has been limited, but have had better success with it than with any other treatment I ever tried. That is peroxide of hydrogen ($H_2 O_2$) (Ch. Marchand's), which you will see advertised in the REVIEW.

As we all know, an open joint, regardless of which joint it may be, is serious enough in its character; for if recovery is made in any degree at all the joint is generally left larger, either of a boggy nature, or by the accumulation of organized lymph, or of the bony conformation itself, and very often partial if not complete anchylosis of the entire hock.

As a rule the injury needs treatment for a considerable length of time, and unless you can have the patient under your own supervision the attendant may neglect your directions, and may be not comply with them at all because he may think your treatment is doing no good on account of slow improvement.

I will describe a case which came under our treatment, although the peroxide of hydrogen treatment was not used in this case and the treatment did not prove satisfactory. The patient was a large Norman mare belonging to a farmer, and was driven six miles from home on November 19th, and while standing in the stall by the side of another horse, was kicked on the inside of the right hock. The animal was driven home in the evening of the same day. The driver noticed that she was showing considerable lameness in the right hind leg, but on making an examination he could not discover the seat of the lameness, nor could he discover any abrasion of the skin; so he pulled the shoe off and turned her out in the pasture, thinking she would be all right in a few days, but in three days after she was hurt the owner came and said she was worse instead of better, and wanted us to come and see her. We went, and on making an examination found a direct opening into the tibio-tarsal articulation on the inside of the right leg.

The patient was suffering intense pain; temperature above normal; respiration hurried, which remained so for four or five days, and with but very little appetite, which improved considerably after seven or eight days. After telling the owner it was a bad case and what the consequences would likely be, we were advised to do the best we could for her, as she was a fine brood mare and was supposed to be in foal; he wanted her saved till after foaling time if we thought she would raise the colt. She was about fourteen years old, and had only bred every other year for the last four years.

So we gave the opening an injection of strong chloride of zinc solution, and ordered cold water bathing followed by the application of a strong liniment, three or four times a day.

We went back the next day, taking a sling with us, as she was a heavy mare and had refused to lie down since she was hurt. We put her in the sling in a large roomy box, and as the cold water and liniment application had failed to allay the inflammation to any marked degree, we applied both to the inside and outside of the hock a cantharides blister, which we applied again on the third day. She was kept in

the sling, keeping the bowels in a relaxed condition, with nitrate of potash in the drinking water. With the above care, the blister was allowed to scale off; but seeing not the slighest improvement, and the synovial fluid escaping as fast as it formed ever since our first examination, ten days after she was first put in the sling and the hock blistered, we gave the opening another injection of chloride of zinc solution which was kept up daily, and applied cold water to each side of the hock constantly, by suspending a cask of water above the animal, and by means of two pieces of rubber hose about the size of a rye straw passing from the cask and bandaged to each side of the leg about four inches above the injured joint. The last named treatment was kept up for two weeks, which seemed as if it was going to have the desired effect; the patient in the meantime still remaining in the sling. At the end of that time the zinc solution was stopped, as was also the cold water, and the opening allowed to close, the sling removed and in a few hours the patient laid down for the first time in four weeks. But the injury was still very painful, the mare being large and heavy, although becoming quite emaciated by this time; was unable to rise without assistance, so she was raised by means of the sling after laying about forty-eight hours, and kept in the sling for three days and nights, doing that way alternately for six weeks, but giving the injury no treatment in the meantime. At the end of that time she could raise herself because of her emaciated condition, and her appetite was as good at present as if she had no injury at all. At the end of two months after she was first hurt an abscess formed and opened on the opposite side of the joint from where she was first kicked, which discharged a sanguineous pus mixed with synovial fluid. This was cleansed with carbolic acid solution one to twenty, and washed with the same solution daily, till this opening healed which was three weeks after it first formed. Since the last opening formed, the bony conformation of the entire hock had been enlarging, and by this time the owner, getting thoroughly discouraged, said he would turn her out in the pasture and let her "root hog or die." He did so, taking her a little grain

twice a day, which, with what grass she could get, constituted her rations till the fifteenth of last June, when she gave birth to a healthy, well-developed horse colt, which commenced thriving better than the average foal under the circumstances; the mother doing fairly well with her feed, increased with the different kinds of easily digestible food; but the injury still seemed painful, and she still refused to put much weight on the injured leg. On the tenth of August two more abscesses were noticed forming on the outside of the leg, one opposite the joint and the other five inches above the joint; it was then evidently a hopeless case, but the owner now wished us to do the best we could for her until her colt was old enough to wean. So the abscesses were opened and the pus allowed to escape. Cleansing them daily with carbolic acid solution one to twenty, the lower one healed up nicely, but the upper one was slow to heal. So on the 18th of September, the colt being old enough to wean, the mare was destroyed, the leg amputated above the injury, and the soft parts removed. Found the bony parts considerably enlarged and of a porous nature, with almost complete anchylosis of the entire hock except very limited action in the tibio-tarsal articulation. The diseased bone resembles Fig. IV., Plate II., in Williams' Surgery, sixth edition.

Another case, that came under our treatment July 19th, was a medium sized black mare that had been kicked three days previous on the same leg and in the same place as the preceding case, the opening being straight into the joint and the synovial fluid escaping as fast as it formed. We gave the opening an injection of an alcoholic saturated solution of bi. chlo. of mer., and applied a canth. blister. On the 11th the owner brought her back to the hospital, and left her for us to do the best we could for her; so we commenced the peroxide of hydrogen treatment, giving the opening an injection twice daily of one to five solution in aqua distillata. The constitutional disturbances noted in this case were about the same as in the preceding case, but this case not being so heavy and not with foal could get up and down at will, the discharge from the joint at no time being unhealthy since we began the use of peroxide of hydrogen solution. But ten

days after she received the injury, crepitation could be distinctly heard on moving the joint, which we all know is a very unfavorable symptom; but the peroxide of hydrogen injections were kept up till the first of August, when the opening entirely healed up, and on the 4th of August the patient was discharged, the hock slightly enlarged by the accumulation of organized lymph and the patient still showing considerable lameness; but the last we heard from her she was walking with more ease than when she was discharged.

On July 21st we were called to see a fine mule that had been kicked four days previous on the inside of the right hock, and on making an examination found an opening directly into the tibio-tarsal articulation. The owner had worked her one day after she was kicked, not thinking the injury very severe; still he usually keeps on hand about one hundred head of horses and mules, is about sixty years old and never saw an open joint before; if he did he did not know what it was. So, telling him what it was and what the result would likely be, he said "Go ahead and do what you can for her, for possibly she will make a plug mule, but before she was kicked was valued at two hundred dollars."

The constitutional disturbances were not so aggravated in this case as in most similar ones. We applied a canth. blister to both sides of the hock and prepared a sol. of per. of hy. one to twenty, giving the joint injections of the same once a day. We again saw the case three days after and could notice no change, but ordered the per. of hy. injections kept up daily, and on the 31st the owner reported he thought the case was doing well. We again saw the case October 1st; the opening was closed, the patient walking and bearing almost as much weight on that leg as on the opposite one; no inflammation was detected, but the hock was somewhat enlarged, and the bony structure seemed to be in a normal condition.

Let us hear from more members of the profession that have used peroxide of hydrogen, in regard to its therapeutic value. I find it of value in fistulous tracts of any kind, and have seen it used as nasal injections in catarrhal troubles in solution one to eight in the human, where it was of great service.

REPORTS OF CASES.

AMERICAN VETERINARY COLLEGE.

HOSPITAL DEPARTMENT.

MYOCARDITIS AND ENDOCARDITIS AS A RESULT OF DISTEMPER IN A DANISH MASTIFF.

By E J. Nesbitt, D.V.S., House Surgeon.

The patient was received into the hospital August 1st, 1891, with the following history: He was one of a litter of eight pups born in the old country. Was brought to this country when quite young and became the property of Mr. K. when about seven months of age, and is now one year and six months old. He was admired by his owner because of his large size and rapid development. Fearing that confinement in his city home might retard his further development, his owner concluded to send him to the country. This vacation seemed to agree with him, much to the satisfaction of his benefactor. He became fat, coat glossy, and his bones, his owner said, "were getting so nice and large." He was then brought back to the city and gained many friends, among them being a lady friend of the family, who asked to have the dog go with her to Long Branch for the summer. His owner being willing, Nero went with the lady to enjoy surf bathing on the Jersey coast. He had not been there long when it was observed that he left his feed, his coat became rough and stary, and he lost his usual vim, becoming dull and inactive. This worried the lady and she sent him home to his master. This change did not have any beneficial effects, for he kept on losing flesh and became very dull. Because of this the owner brought him to us and upon examination it was found that nearly all the joints of the extremities were swollen and painful on pressure. When made to move he showed a very stiff gait. The mucus membranes were congested. These facts, together with his being constipated and in a poor general condition, made us call his case one of rachitis. His ears were in a fearful state, not only

being filthy, but discharging a mean-smelling fluid. This latter trouble was auricular catarrh. The treatment adopted was as follows. For the constipation;

℞. Olei Ricini, ℥i.
Syr. Rhami Cathart, ℥ss.

M.

For the auricular catarrh, a ten per cent. solution of peroxide of hydrogen was sprayed into the ears after they had been thoroughly cleansed.

For the rachitis, careful nursing with phosphates. In due time the cathartic acted and the catarrh gradually succumbed to the treatment, but his general condition remained the same. We then gave him raw meat with bone dust sprinkled over it. Of this he ate at first sparingly, but in a short time began to like it, and in this way we coaxed back his appetite. He began to move with greater ease and his coat began to look glossy and lay flat. He kept on improving until he had been here ten days, when a change was observed. He lost his appetite, began sneezing and coughing, his eyes and nose began discharging, the mucus membranes were congested, became very weak, respiration became hurried and pulse very rapid; his temperature was 102° F. Besides this, there was the characteristic odor of distemper, which proved to be the cause of this sudden change. He was immediately put under quinine and alcohol, together with careful nursing. He seemed to fail for four or five days and then we gave him a tea made of milk, concentrated beef and gluten. This had been given only a short time when an improvement in the appetite was observed. Then as soon as he began eating an improvement in his general condition was obvious. His temperature dropped, pulse and respiration became less frequent, and the discharge gradually ceased, and in a short time he was, as we thought, out of danger.

The glary condition of the eyes passed away, and he rapidly gained flesh and strength. The fact of his doing so well made us think of sending him home, and we had even gone so far as to inform his owner of his condition, telling him that he should call for him, when on the morning of the 28th he

was found dead. The suddenness of his death aroused our suspicions and a post-mortem was held.

The autopsy revealed at least two very interesting specimens. At the post-mortem table the following notes were taken: Condition fair; coat smooth; blood of good quality; muscles normal in color and consistency; fat is evenly distributed; the respiratory, digestive and urinary apparatuses normal; the peritoneum was slightly injected. One of the interesting specimens just alluded to occurred free in the peritoneal sac just under the left kidney. It was a beautiful specimen of Eustrongylus gigas. This parasite, according to Cobbold, is very common in carnivorous animals. Very commonly found in the kidney, ureter and bladder of these animals, but nowhere can I find a case recorded where it has existed free in the peritoneal sac. The same author says it is more often found in fish-eating animals.

Furthermore he says, "It is by far the largest nematode known to science, the male sometimes measuring a foot in length, and the female more than three feet, whilst the breadth of the body reaches half an inch in the thickest part." The specimen obtained by me was ten and one-quarter inches long, of a bright red color, as thick as a stone slate pencil. Through the body ran a very much circumvoluted white band, about one line in width, from the mouth to the anus. At the head were easily seen the six wart-like papillæ described by Cobbold, and at the anal extremity is the cup-like structure which is of a pure white color, and which partly conceals a single spicula. How did this worm get into the peritoneal sac? The kidneys offered no evidences of a rupture by which this worm might have dropped into the peritoneal cavity. How it got there is to me a mystery. The next interesting point came when we examined the heart. This organ weighed between nine and ten ounces. The pericardium was normal. The muscular tissue showed evidences of an active inflammation, especially around the left ventricle. There was discoloration of the parts. The endocardium was the seat of a very severe inflammation, especially that lining the left ventricle. One of the flaps of the bicuspid valve had a

large fungoid growth about the size of a beechnut fastened to it. Besides this, in numerous places were small ulcerations and in other places small nodular growths. This undoubtedly was the cause of his sudden death, and serves very well to illustrate how distemper may be complicated and terminated.

THUMPS ACCOMPANIED BY SPASM OF THE MASSETER MUSCLES —OR TEMPORARY LOCKJAW.

By The Same.

On the evening of September 23d I was called to see a brown gelding about six years of age. On questioning the groom, I obtained this history: the horse had been out to pasture for six weeks and had had no grain. He was brought to the city last Saturday, the 19th, and was cared for as he had been before he went to the country—fed grain and given the usual amount of exercise. He was driven a distance of about five miles and then put in the stable, when it was observed he began to breathe very rapidly and sweat profusely. When they tried to remove the bit great difficulty was experienced, the jaws being firmly set; for this reason I was called. On examination I found the temperature 101°, pulse so fast I could not count them, the artery being like a piece of wood; the membranes very much congested; breathing about 80 per minute and at the flank a plain thump was seen; the jaws were closed and could not be moved; the masseter muscles were hard and prominent. A slight stiffness behind was also noticed. I made a diagnosis of thumps with a spasm of the masseters. For treatment I ordered absolute quiet and as soon as able, drinks of whiskey. I then left. When we called this morning, I was told, that gradually he stopped thumping and cooled off, and about ten o'clock his jaws became loose and he ate hay and drank freely of whiskey and water. This morning his temperature, respiration, and pulse were normal. He had eaten his usual breakfast and was all right to all appearances. Walking exercise was ordered.

Thumps pure and simple are not uncommon among light roadsters, but it is very rarely accompanied by the locked jaw. I think the cause of it was the sudden change of food and the hard drive on a very warm day.

CHOKE IN A DOG—ŒSOPHAGOTOMY—REMOVAL OF A LARGE PIECE OF BONE.

By E. B. Ackerman, D.V.S., House Surgeon.

The patient was a little Scotch terrier pup, about six months old. One day after the dog had been picking in some bones the owner noticed a large swelling under the neck, which was painful and sometimes caused the dog to gag; when offered food he refused all except a very little milk and water.

The dog was more or less lively at times, and when owner touched dog's neck, it would make the dog act sick again for awhile. This went on for about a week, when the owner took the dog to his family physician, who diagnosed a case of choke from a bone in the œsophagus, and advised the owner to bring the dog to us.

The dog was brought here on October 5th, 1891; he had a large swelling on the underside of his neck, situated in the middle of the cervical portion of the œsophagus; you could feel a foreign body—apparently a large piece of bone. This swelling was very painful to the touch.

We cut down on it so we could see a portion of it, then we took hold of it with our forceps, and extracted it. This took considerable force, as the muscular coat was so constricted around it or it was so firmly imbedded in the œsophagus.

The bone measured four inches in circumference, seven-eighths inch thick, one and three-eighths inch long, one and three-eighths inch wide, and weighed eighty-six grains. It was a piece of the large trochanter of the femur of some small animal.

After extracting the bone the dog regurgitated some of the contents of his stomach; this he did for a day or two in small quantities.

We kept the wound perfectly clean with antiseptic washings, and two days after he stopped discharging his ingesta from the opening and the wound was granulating nicely; by the third day the swelling had subsided almost entirely and the granulations healthy.

He was discharged on the fifth day with the wound almost entirely well. The interest of this case is the large size of the bone compared with the small size of the dog.

SUPPURATIVE ENCYSTED KIDNEYS.

By P. Joslin, V.S.

I don't know as this will be of interest enough for you to give it any notice; if so you can make a note of it. On October 6th I was called to visit a black mare thirteen years old, about sixteen hands high, and found her very much reduced in flesh; limbs swollen a little and apparently lame in the off hock joint; pulse 60: temperature 104°; appetite capricious; examined; over the kidneys found no tenderness on shrinking from pressure of the loins; diagnosed indigestion with fever; left remedies indicated, with orders to give bran mash. October 8th saw mare; found appetite improved a little; pulse 70, and weak; temperature 103°; and swelling gone from the limbs except the off hock joint, which was very much swollen and very painful; would hold it up most of the time; prescribed lotion for leg. Nine o'clock in the evening mare laid down and struggled with pain until she died at 1.30 o'clock.

October 9th made autopsy at four o'clock P.M.; found left kidney encysted in a thin sack and surrounded by a fleshy tumor as large as a man's head. The substance of the kidney was all soft suppuration. On cutting through what should have been the kidney into the tumor, it discharged about one quart of white pus, the consistence of cream. The liver and spleen were congested; bowels normal and all of the internal viscera except those named.

One thing I will mention. About four years ago this mare had a calculi extracted from the bladder weighing nearly one pound, and two years ago another about the size of a small hen's egg, which I have in my possession at the present time.

CHLOROFORM AND COCAINE IN NEUROTOMY.

By James Henderson, M.R.C.V.S., (Edinburg).

The expediency of performing the operation of neurotomy, or more properly speaking neurectomy, is still, in the minds of some practitioners, a method of doubt; but its value as a means of relieving foot lameness will not be considered in the following remarks; their purpose is only to offer a few observations upon the relative merits of chloroform and cocaine as suitable anæsthetics in the performance of the operation. The writer had the pleasure of assisting at two such operations, both performed by Professor Walley, of Dick's Veterinary College, Edinburgh, in which chloroform was used in one case, and cocaine employed in the other; and a description of the essential points of difference on the production of anæsthesia in each, will aid us in the consideration of this subject.

In the operation in which chloroform was used, the patient was a small bay mare over twelve years of age; she was suffering from navicular disease. After being cast, chloroform was administered by means of a sponge applied to the nostril. Before any incision was made a linen bandage was rolled tightly on the part, beginning at the hoof and extending upwards to near the knee; the object of this was to remove as much blood as possible from the part to be operated upon, and to retain the effect of it, an elastic tourniquet was then applied three or four inches above the site of the higher operation. The bandage was then removed, the incision made, and the nerve dissected out. About three-quarters of an inch of the plantar nerve was cut out and the wound treated in the ordinary way. When the nerve was found and manipulated, the mare showed marked signs of sensibility, and when it was cut she started violently. No bad effects followed the use of chloroform in this case.

In the second case, the patient was a sorrel mare, slightly larger than the first, aged, and suffering from ring-bone. Before casting, cocaine was injected at the site of the higher operation, by means of a hypodermic syringe. About a

drachm of the ten per cent. aqueous solution of the hydrochlorate was used. The hæmostatic precautions were the same in both cases, and in each case procured an almost bloodless operation. In the latter case there was some swamping of the tissues with clear fluids, composed probably of lymph and the cocaine solution. The local anæsthesia produced by the cocaine was so complete, that during the dissection of dermal, connective, and nerve tissues, the mare never once quivered. So much was this the case that a little comparative examination was required to distinguish the nerve from the artery.

It is stated by some that the death rate of horses due to the use of chloroform is five per cent. The dangers to which the patient is exposed by this general anæsthetic are chiefly respiratory and cardiac arrest, and proneness to hæmorrhage induced by the lowering of the tone of blood vessels and their consequent dilatation. The danger of constitutional disturbance from the use of cocaine is practically *nil.* The temporary loss of sensibility in the part may continue for a length of time not exceeding a few hours. One great advantage of cocaine over chloroform, especially in minor operations, lies in the fact that it can be employed where the risk of death by use of chloroform would be excessive, as for instance in cases in which the patient suffered from any form of heart disease, or of any chronic affection of the respiratory system, as emphysema, lung consolidation, or roaring. The question resolves itself into one of general versus local anæsthesia. It is undeniable that, in most major operations, general anæsthesia is absolutely necessary, and patients suffering from serious defects in their circulatory or respiratory systems may, on their account, be beyond the reach of surgical interference. Still, in veterinary practice many operations are undertaken by aid of general anæsthetics, which might safely be performed under a local one. The more general use of local anæsthetics should be encouraged, because it is the more scientific, that is to say, if in an operation there is a choice between a local and a general anæsthetic, the former should be chosen every time, because it eliminates from the case the con-

stitutional and surgical risks already pointed out, and also the certainty of lowering the vitality of the patient, which is the physiological sequence of general anæsthesia. Careful observation combined with scientifically conducted experiments, will probably demonstrate that operations hitherto supposed to be impossible, except under a general anæsthetic, will be found to be not only practicable but safe under a local one.

LARYNGITIS AND ITS RESULTS—"VAPOR AS A THERAPEUTIC AGENT."

By L. T. Willyoung, D.V.S.

While reading the articles in your last number on "Laryngitis and Its Results," and "Abscess of Guttural Pouches," it occurred to me to suggest a remedy which I have used for some time past, which, in a measure, prevents the bad results following this disease, especially post-pharyngeal and guttural abscesses.

September 9, 1891, a chestnut gelding six years old was brought in for treatment. Had refused to eat; head hung low; visible membranes injected and conjunctiva swollen; had a very painful cough; respirations loud and hurried; pulse 70; temperature 106° F. All attempts at swallowing were unsuccessful, violent fits of coughing being produced. Diagnosis, acute laryngitis. Prescribed,

℞

Cinchonidia,
Fl. Ext. Bellad.,
Glycerine. } aa ʒ ij.

Tinct. Fe. ʒ j

every three hours given with a syringe. Applied a mild embrocation to the throat; adjusted a jowl-hood, and clothed him warm. After twenty-four hours, as the case had not improved any (pulse 70, temperature 106½°), I continued treatment, and in addition allowed him to inhale "vapor" from vinegar placed over an oil stove, steaming him from thirty minutes to an hour four or five times daily.

After two inhalations the animal's breathing was less sono-

rous, the cough more free, and a copious discharge of clear, healthy mucous. September 11th, temperature 105°, pulse 60. Patient partook of mash and hay, and for the next five days improved rapidly; discharge from nose being copious and free from fœtor.

A peculiar feature of the case was the temperature remaining stationary 105° for five days. After the third day I dropped the use of cinchonidia and gave no antiseptic at all. The above condition was, no doubt, due to a fleshy condition of the animal, there necessarily being greater oxidation, through lissen metamorphosis, the stored accumulation of nutritive elements maintaining the animal strength.

The therapeutic effects of vapor with some aromatic added (as peppermint leaves, spruce or hemlock twigs) cannot be overestimated. I have always used it, and with success. It facilitates an early discharge of mucous and retards abscesses. It allows the animal to partake of and swallow food earlier; often dispenses with the operation of tracheotomy, and I have never had a hemorrhage in a case where this was resorted to.

To obviate the difficulty experienced in giving medicine in drenches, a long-nozzled syringe should be used, the medicine slowly injected over base of tongue, when it will be readily swallowed, at the same time producing a beneficial local effect.

In the case alluded to we had luxation of the patella in right limb, two weeks after recovery, and has since given no little amount of trouble. Why may not this be a result of laryngitis indirectly, as case had met with no accident after recovery. It is noted, however, that luxation of the patella is often a result of any debilitating febrile disorder.

EXPERIMENTAL PATHOLOGY.

HEREDITY OF TUBERCULOSIS.

This important question was presented at the Congress on Tuberculosis, and answered by Dr. Wignal as follows:

I have tried, by numerous experiments, to elucidate the question of the heredity of tuberculosis. Inoculations of portions of fœtal organs or of still-born fœtuses from well-marked tuberculous mothers were made on guinea-pigs, divided into series. Portions of placentas, crushed like the preceding, in sterilized salt water, 7 (per cent.), were also inoculated to other pigs; and in a third group of experiments inoculations with the sputa or portions of the organs of the tuberculous mothers were made similiarly to others.

These experiments have given results uniformly negative to the assumption of the transmissibility of tuberculosis from mother to fœtus. Indeed, while the guinea-pigs inoculated with the organs and sputa of tuberculous mothers died with tuberculosis, on the contrary the twenty-four guinea-pigs inoculated with the organs of children issued of tuberculous mothers and the eighteen treated with the portions of placenta remained healthy.

In another series of experiments, I also tried to determine if, in a direct experiment upon animals, transmission from the mother to the fœtus could be obtained. With this object, I innoculated five female guinea-pigs in the peritoneum with the bacillus of Koch; the livers and spleens of the eleven young ones issued from these females were inoculated to nineteen guinea-pigs, some of which are yet living; others were killed after five months and none of them presented the slightest indication of tuberculosis.

From the above the author concludes that heredity of tuberculosis is far from being fatal or even frequent, but on the contrary seem to be extremely rare.—*Journ. Soc. Scient.*

RESISTANCE OF THE RABID VIRUS TO THE ACTION OF LONG-CONTINUED COLD.

Mr. A. Chauveau has presented to the Academy of Medicine of Paris, in the name of Mr. Jobert, the report of the following experiment:

"A rabbit inoculated with rabies, of which it had died, is placed the same day in a cool chamber and submitted to cold

of .—10° F. During the ten months it was left there, it was exposed to temperature varying between .—10° and .—20°. especially in September, 1890, December, 1890 and March, 1891. On the first of June the rabbit was taken from the cool chamber, conveyed in an elevated temperature upon a journey that lasted five hours, after which he was entirely thawed out. He was then again placed on ice and the next day the extraction of the spinal cord was performed, to test if the rabic virus had resisted the prolonged action of cold.

With the bulb, which appeared like that of a rabbit just killed, perhaps of less consistency, a large and strong rabbit was inoculated by trephining. On the fourteenth day he was sick, and died paralytic on the sixteenth day. With its bulb five other rabbits were inoculated, through the anterior chamber of the eye: one died the next day from traumatism foreign to the operation, the four others succumbed with all the symptoms of paralytic rabies. The bulb of one of these animals was used to inoculate two other rabbits through the eyes; both died with rabies.

To make the experiment more positive, two rabbits were inoculated with the bulbs of these last animals; each rabbit received one inoculation from one bulb only. These also died with rabies.

Conclusions:—With the four successive series of inoculations, rabies has always taken place and "*it seems evident that cold has no action upon rabic virus.*"

Mr. Laquerriere has already proved that the virus of pleura-pneumonia can be kept for a long time when exposed to intense cold. If the same can be said of the vaccine for rabies or other vaccine fluids, the work of the preservation of prepared vaccine will be considerably simplified. The results of the experiments obtained by Mr. Jobert seem to indicate that this mode of preservation is possible.—*Jour. Soc. Scientif.*

EARLY DIAGNOSIS OF BOVINE TUBERCULOSIS BY EXAMINATION OF THE OCULAR HUMORS.

Mr. L. Mandereau has made numerous investigations in

this direction, and says that he has found in the aqueous humor of bovines the bacillus of Koch, existing with the lesions, generalized or local, of the lungs, pleura, bronchial glands, mesenteric glands, spleen, liver, whether in local eruptions or general manifestations.

In other words the aqueous humor has always been found well provided with the Koch microbe in all cases of generalized disease, and in those where it remained localized to the thoracic or abdominal organs, or localized to the lungs or only to the liver.

Consequently the author concludes: the examination of the aqueous humor is an excellent way to establish the early diagnosis of the disease when symptoms are yet indefinite in their expression.

The puncture of the cornea with a sterilized glass pipette is the simplest operation which will allow the gathering of a sufficient quantity of the humor for examination.—*Soc. de Biolog.*

EXTRACTS FROM FOREIGN JOURNALS.

TWO CASES OF EQUINE TUBERCULOSIS.

By E. FAULKNER, M.R.C.V.S., Manchester.

In view of the alleged rarity of tuberculosis in the horse, I think it right to put on record the two following cases, which have come under my observation within the last two months.

CASE I.—Regarding the clinical history of this case, I am, unfortunately, not able to give very minute details, as the animal was not during his illness under my care. The facts that I have been able to ascertain on this head are the following:

The subject was a black draught gelding about eleven years old. He had been in possession of the same firm for over five years; and, save for the three months preceding his death, he had during the whole of that period been in good health, condition and spirits. He was a good worker, and was regularly employed in carting hides from the different skin yards to the railway station.

About three months before his death he began to lose appetite, and rapidly became emaciated. He was placed under treatment and well nursed, but his condition steadily became worse, and he was destroyed on the 7th of February last. On making a post-mortem examination I discovered the following lesions:

The mesenteric glands were greatly enlarged, being converted into a bunch of tumor-like bodies, varying in size from a pigeon's to a goose's egg. Both surfaces of the diaphragm were studded with flat fleshy nodules, the largest of which were somewhat mushroom-shaped, and nearly two inches in diameter at their widest part.

The spleen weighed eight pounds, and its capsule showed several yellowish white nodular growths similar to those on the diaphragm. Its lymphatic glands were enlarged, and projecting from the hilus there was a firm mass as large as the two fists. On section this proved to be a tumor-like growth, which at its periphery extended irregularly into the substance of the spleen. Its consistence was sarcomatous, at some parts almost brain-like, and it showed some caseating points.

The lung was beset with nodules varying in size, the biggest being larger than a pea. It also contained larger and more irregularly shaped areas of the same sarcomatous appearance. None of those showed distinct caseation, but at one point underneath the pleura there was an irregularly wedge-shaped mass, the centre of which was caseous but firm, while its outer part was necrotic. Between these lesions the lung tissue was congested.

Portions of the diseased organs were sent to Professor M'Fadyean, who reported that he had no difficulty in discovering tubercle bacilli in the lesions.

CASE II.—The subject in this instance was a bay draught horse eleven years old. He had been in Manchester for about four years, for three of which he was in fair condition and doing regular work. During the past year he had fallen off in condition, and he had occasionally to be placed under tonic treatment and allowed rest. About the beginning of

February last he contracted epizootic influenza, and under this he became so emaciated as to cause me to suspect the existence of organic disease—probably tuberculosis. I therefore advised his destruction, and he was killed on the 23d of February.

Post-mortem.—The mesenteric glands were in much the same condition as in the previous case. The peritoneal surface of the diaphragm was almost completely covered with a fleshy new growth about two inches in thickness.

The spleen was not much enlarged. Its surface carried some fleshy new growths, but none were present in its substance.

The lung was filled with large miliary tubercles.

In this case also the diagnosis was confirmed by the discovery of tubercle bacilli in the lesions by Professor M'Fadyean.—*Jour. Comp. Pathol. & Therap.*

A CASE OF EQUINE TUBERCULOSIS.

By M. Tailby, M.R.C.V.S., Birmingham.

The following makes another addition to the growing list of cases of tuberculosis in the horse.

History.—The horse was a black gelding, age about eight years. He was brought to me with the history that he had been purchased three weeks previously, and that it was only recently that he had been noticed to be dull and not feeding well. I ordered the man to cease working him, and promised to call and examine him more minutely next day.

This I did, and I then found that his appetite was still failing, his pulse 55 and temperature 103° F. He continued in much the same condition for about twelve weeks, the pulse varying from 55 to 60, and the temperature from 102° to 103°. Latterly his breathing became a little accelerated, his pulse more feeble, and the visible mucous membrane more pallid. Signs of dropsy began to show themselves about his hind legs and sheath, and it was evident that he was losing flesh daily.

Diagnosis.—From the resemblance which the case bore to

a previous one of what I took to be lymphadenoma, I came to the conclusion that the horse had a tumor in connection with some of his viscera—probably the spleen; and as there seemed no hope of his recovery, I had him destroyed.

Post-mortem.—The mesenteric glands were enormously enlarged, the group being converted into one huge mass, in which the individual glands were scarcely distinguishable. They were very firm, and on section they were seen to be extensively caseated. The mass weighed over forty pounds.

Both kidneys were much enlarged, but showed no visible alteration of structure.

The lungs were uniformly filled with nodules, varying in size from a pea downwards. These nodules showed no distinct caseation. The two lungs together weighed seventy pounds.

Portions of the diseased organs were sent to Professor M'Fadyean, who informs me that he found tubercle bacilli numerously present in the caseating mesenteric glands.—*Ibid.*

DELIVERY OF A FOAL PER RECTUM.

By Jas. Cooke, F.R.C.V.S.

As the foaling season is at hand the following communication may prove interesting to those who have not had the opportunity of meeting with a similar case. The subject was a bay mare six years old, belonging to Henry Lawly, of Seamer, near Scarborough. I was given to understand she was foaling a little before the usual time, this being her first foal, and that she was somewhat vicious, and would require to be carefully dealt with.

On my arrival at the farm I found her in a loose box, and laid on her near side; one leg of the foal was protruding through the rectum; she made no attempts to get on her feet, but kept straining violently. On making a further examination I found the other fore foot in the rectum, and the nose between the fore legs; before I had the opportunity of placing the foal in a natural position she gave one violent strain,

and forced the head partly outside the rectum. The anus being sufficiently relaxed I determined on bringing the foal away in its present position, and found no difficulty in doing so; in fact if she had had sufficient time she could have forced it away without any assistance. It was a fine, healthy, full-grown animal, but unfortunately the mare would never take to it, so that it had to depend upon artificial support. The mare had now a stimulating draught given, and some gruel, which she drank heartily, and then immediately jumped on her feet. A singular circumstance in the case is that she never showed any febrile symptoms, the breathing was quiet, and the pulse only 48, except on the tenth day after foaling, when the breathing became accelerated, and the temperature slightly increased; on this day the foal died from the attendant's neglect.

On examining the mare internally, the floor of the rectum was found to be lacerated to such an extent as to admit of the foal coming through; the anus and sphincter muscles were intact, and did not show any signs of laceration—an unexpected result considering the great amount of distension they had undergone. After a time the lacerated parts contracted, and ultimately the rent diminished to about three inches, which always remained, and during the act of defecation the fœces would drop into the vagina, necessitating their removal occasionally, and when micturating the urine frequently passed out of the anus.

On my calling one day within a month after she had been foaled, I was annoyed to find the animal had been at work for some days; within a fortnight after that she had an attack of laminitis which resulted in pumiced feet.

The treatment for the first few days after foaling consisted of hot wet rugs to the loins for several hours daily, which were replaced by hot dry rugs; and bandages to the limbs. An ointment composed of vaseline, carbolic acid and oxide of zinc was applied *ad libitum* to the lacerated rectum by means of a wooden spatula, and an injection was given daily of warm carbolised water. Internally, stimulants were given two or three times a day and a few ounces of linseed oil occasionally the diet being of a pultaceous kind.—*Veter. Record.*

LAMENESS—FRACTURE OF FIRST RIB.

By W. Willis, M.R.C.V.S.

The interest evoked by the publication of an account of "a case of lameness associated with broken first ribs" in *The Record* some months back, induces me to send the following notes.

On the Saturday before Whitsunday my attention was called to an old brown harness horse. I was told that shortly before my seeing him he was being driven through Bishopgate Street, and had reared up on seeing some paper in the roadway; he came down on his feet, lurched forward, and fell on his near side. On rising he was at once noticed to be very lame.

I found him excessively lame in the off fore leg. He stood with the shoulder hanging down and the elbow far below its normal position; the knee and lower joints were flexed. When compelled to move it was seen that though he could advance the limb fairly well he was incapable of bearing any weight on it. So soon as he attempted to move the opposite limb forward, the elbow sank markedly, and he was in danger of falling. The symptoms remained practically the same till the following Thursday, when he was destroyed. This was accomplished by bleeding him to death, his head being tied short up to the wall the while, so as to prevent him doing any injury to the ribs in falling if despatched by the pole-axe—a possibility suggested by one of your correspondents.

On making a post-mortem examination I found the caput magnum and caput medium of the triceps extensor brachii perfectly healthy. The caput parrum and the anconeus were both pale—particularly the latter, more than usually moist, and the fibres seemed separated up. The first rib on the right side was broken completely through, near the head, and the broken ends were in places seen quite smooth and bright by rubbing against each other. There was a very small amount of effusion around this lesion, and so far as I could discern, the vessels passing out of the chest to supply the limb were in no way interfered with. The nerves supplying the limb

seemed equally free from injury. In this respect this case differed very materially from the one recorded some time ago, where nerves and vessels and muscles were all bound together by dense fibrous tissue. The lameness in the two cases were practically identical.—*Ibid.*

ARSENIC IN SPECIFIC OPHTHALMIA.

By R. C. Irving, F.R.C.V.S.

I use the term "specific" in this connection because it has been so used before, but I mean nothing more than that the inflammation of the eye did not arise from any apparent external cause.

In March of last year I was desired to see a gray hack which had only been in town about ten days. Both eyes were closed, and tears were running from between the eyelids: when the eye could be seen, the whole anterior surface was cloudy and the conjunctival membrane was much injected. Warm fomentation was ordered and an aperient given, but little benefit was derived from this treatment during the two days it was tried, excepting that the conjunctiva seemed less irritable and not so red as before. The eye itself could be better seen, and instead of the cloudy appearance first noticed I discovered that the cornea was not much altered, but the aqueous humor as seen through it seemed cloudy and blood-stained. On inquiring if the horse had ever been similarly affected I was told it had, just about a month previous to this attack. I then diagnosed the case as one of periodic ophthalmia and treated it with a colyria of sulphate of zinc, ten grains to the ounce of water. I also administered arsenic in five grain doses daily. The eyes began to improve rapidly—the upper part of the aqueous chamber becoming clear, whilst the lower portion became less milky and more of a clouded purple tint. It seemed as though blood had been effused into the humor and was slowly gravitating to the lower part. Gradually all the cloudy and purply appearance of the eye disappeared, and at the end of three weeks both eyes seemed quite normal in appearance.

Remembering the former attack I continued the arsenic for another fortnight, reducing the dose to three grains, and only administering the last three doses on alternate days. The attack commenced on the fifth of the month, and the coachman thought the previous attack was about a similar date. By way of anticipating a return of the disease on the fifth of next month, I advised the administration of arsenic in three grain doses to be commenced on the first and to be continued till the tenth. This was done and no return of the ophthalmia occurred.

The horse remained under my care untill the middle of August, and received daily doses of arsenic on the first ten days of each month. The coachman took away with him twelve powders, each containing three grains of the drug. These he administered in September. In October he had no arsenic, and thought that it was not worth while getting any. No attack occurred. On November 4th both eyes were again affected and never quite cleared up, so the horse was sold and lost sight of.

I incline to believe the arsenic really prevented the periodic return of the disease, and account for no attack recurring in October by supposing that possibly sufficient arsenic remained in the system to exert its mysterious prophylactic action. I have not been able to repeat the experiment, and I know of no similar experience. Possibly some practitioner may be able to supply further data.—*Ibid.*

PUNCTURE OF THE ABDOMINAL CAVITY, WITH PROTRUSION OF THE OMENTUM.

By. T Bowhill, F.R.C.V.S., Darlington.

The subject of this case was a two-year old filly, injured in a railway accident at Melrose, near Oakland, California, U.S.A. A splinter of wood from one of the broken horse-boxes pierced the off-side of the filly's chest, about four inches anterior to the line of the diaphragm; passing backward, it penetrated the abdominal cavity in the hepatic region, midway between the vertebræ and the sternum. When I first

saw the filly, about ten hours after the accident, the splinter of wood was withdrawn, and about twelve inches of omentum were hanging from the orifice of the wound, over which a yellow-colored serosity was trickling.

To return the protruded omentum would have caused peritonitis, owing to it being partially strangulated; so it was decided to amputate it. The filly was cast on her near side, a probe-pointed bistoury was introduced, and the punctured wound slit open to where it abruptly passed inward; after cleansing, examination of the parts showed it was impossible to return the omentum after amputation of the diseased part; on account of the wound being between two ribs, and circular, no means of closure was left. Slight traction was now applied to the protruded omentum, and about two inches more were withdrawn. The orifice of the wound was then thoroughly cleansed, the omentum stitched to the muscular tissue between the ribs with catgut sutures, and the diseased omentum amputated as close to the sutures as possible, and dressed with a powder consisting of equal parts of bismuth sub-iodide and boracic acid. The lips of the external wound were brought together with strong sutures, an opening for drainage being left at the most depending part. The hobbles were now removed, and the filly allowed to get up, when a pledget of antiseptic tow was placed over the wound, and the whole covered with a broad calico bandage in the shape of a surcingle. The filly was placed on laxative diet, with the addition of tonic powders, and the wound dressed daily with a solution of soluble phenyl, and a little of the above-mentioned powder blown in with a powder-blower. No untoward circumstances arose to retard recovery, except an attack of influenza when the external wound was almost closed, the coughing causing some of the sutures to give way. A firm pledget of tow was applied, and the calico bandage adjusted tight enough not to interfere with respiration, and the wound dressed daily as before. No further complications occurred, and two months from the date of the accident the filly was shipped to Central America.—*Veterin. Journal.*

THE BACTERIOLOGY OF GLANDERS.

From a careful study of this subject Dr. Finger, of Vienna, has arrived at the following conclusions: Successive local injections of the bacilli of glanders into animals susceptible to the poison produce with each injection symptoms of gradually diminishing virulence—that is to say, the first injection only produces the typical nodules, the later ones causing an abortive type of the disease. 2. The constitutional symptoms of glanders after intravenous injection of virulent cultures produces an incomplete local immunity, and an abortive course after subsequent local injections. 3. Intravenous injection of virulent cultures quickly causes death in some animals—sometimes in a few hours; in such cases post-mortem examinations fail to discover any local manifestation of the disease. 4. Intravenous injection of a sterilized culture of the bacilli of glanders produces in rabbits an immunity against the infection from pure cultures which lasts from three to six weeks. Local manifestations, however, occasionally appear, these being of an incomplete nature and not followed by any constitutional symptoms. At the end of the above-named period, however, the injections are followed by a typical and rapidly fatal disease. 5. Rabbits which have survived an ordinary attack of the disease enjoy afterward complete immunity. Repeated local injections simply produce a transitory local affection, constitutional symptoms never following. 6. This immunity does not appear to be able to be transferred to the offspring—that is to say, does not become hereditary. 7. The injection of sterilized cultures of the bacilli or of their chemical products produces poisonous effects, generally mild in character, but sometimes so severe as to kill the animal. Post-mortem examination reveals the same lesions as are seen in the primary disease, localized mainly in the portal system. 8. Injections of sterilized cultures produce an immunity, though not always complete, against intravenous injection of virulent cultures. 9. If sterilized and virulent cultures are injected at the same time, the disease produced is exceedingly rapid and fatal. 10. The bacilli when introduced into the

tissues of susceptible animals exhibit great activity, multiplying rapidly, growing into long threads, and apparently defying the action of the phagocytes. 11. In the tissue of non-susceptible animals, such as white mice, the bacilli show no signs of activity; they rapidly die and disappear. There seems, however, to be no intervention of leucocytes. 12. In rabbits which have been rendered artificially proof against poison the bacilli seem to take longer in disappearing. There is rapid collection of leucocytes, with some exudation. 13. The rapid death of the bacilli in the white mice is probably to be referred to an active power of destruction possessed by the organism. 14. The slower disappearance in other animals is to be referred to the action of the leucocytes, which appear to play a special *role*, as described by Metschnikoff under the term of phagocytosis. But, in addition to this, Dr. Finger considers that the fluid of the tissues themselves plays a prominent part in the destruction of the microbes.—*Wiener Medicinische Wochenschrift.*

BIBLIOGRAPHY.

HANDBOOK OF MATERIA MEDICA, PHARMACY AND THERAPEUTICS.—By Samuel O. L. Potter, A.M., M.D., M.R.C.P.L. (Blakiston, Low & Co.) Third Edition.

A poor book, especially if it be on a scientific subject, is not apt to reach a third edition. (In light literature it is different. That is manufactured for the amusement of people, and its readers can usually bear a good deal of amusing. Most readers of merely entertaining literature are in the passive mood, and are mere receivers, and it is easy to receive. But to read a scientific book, as it ought to be read, is to *study*, and *studying is labor*. And who loves labor?) The two words "third edition," therefor, imply much—they imply the value of the work. They never could find a place, truthfully, on the title page of an inferior scientific work. The title of Dr. Potter's ably written book defines its character. It is a com-

pend of the various branches of materia medica and therapeutics, collected and arranged in subdivisions which treat severally of the associated topics, under an arrangement and in a manner which facilitates the study of the whole, while it sufficiently particularizes and accents the distinctive features of each department. The physiological action of drugs, the special therapeutics of disease, officinal and practical pharmacy, and directions for prescription-writing, are systematically treated in a manner which cannot fail to make an accomplished pharmacopolist of any one willing to study and capable of assimilating knowledge.

Some generalities pertaining to the subjects of materia medica, pharmacy, therapeutics, and the administration of medicine, are followed by a classified arrangement of drugs, in alphabetical order, considered with reference to their effects upon the several organs, regions and apparatus of the body.

This is comprised in Part I., and is followed, again, in Part II. by a treatise on pharmacy and the art of prescription-writing.

In Part III., under the head of special therapeutics, we have a presentation of the subject of the general indications of drugs in special diseases, and this is enriched with a collection of prescriptions—perhaps the most valuable portion of the book. In reference to this it may be said that no pharmacist, and certainly no practitioner, can go amiss in hoarding prescriptions of a tested and practical character. They are actual wealth to a man in busy practice, and may save him from many an anxious cogitation. No man can always remember.

An Appendix is added, in which sundry other matters are treated which do not exactly "fit" the body of the book.

This hand-book forms a neat volume of some 700 pages, well printed, with a good solid binding, and cannot but be a valuable addition to the library of the practitioner of medicine and the student of therapeutics, whether in human medicine or in the veterinarian ranks.

PRECIS DE THERAPEUTIQUE, MATIERE, MEDICALE ET PHARMACIE VETERINAIRES. (Treatise on Veterinary Therapeutics, Materia Medica and Pharmacy.) By Paul Cagny. (J. B. Bailliere & Fils: Paris.

We thank our friend Cagny, and avail ourselves of the columns of the Review to return him our compliments for his courtesy in favoring us with an opportunity of examining this excellent little work. Its fine literary execution, the judicious arrangement of its contents, and the specially interesting facts which he has collected, must combine to render it not merely a valued acquisition to the library of the veterinarian, but well nigh an indispensable necessity in his daily practice.

The work treats, under four heads, of general therapeutics, veterinary materia medica, with special therapeutics and the same applied, with also the effects of drugs, and their special action. The subject of the antiseptic philosophy, including the questions both of asepsy and antisepsy are carefully reviewed, and the principles and their application of this important discovery or development in scientific surgery receive special attention from the author and are adjudicated with the intelligent authority befitting his many years of personal cognizance of the matter.

A number of engraved illustrations add value to the book. Readers of French will find great interest and profit in consulting this work of Mr. Cagny.

FORMULAIRE VETERINAINE, (Veterinary Compendium,) By Bouchardet and Vignardon: (Felix Alcan, Paris).

This is another of what may be denominated at once the source and the product of veterinary progress, though this particular volume is not one of the freshly original kind, being the fourth edition of a work which must necessarily be of established value to demand so frequent a reissue.

It forms a magazine of ammunition for veterinarians, being a copious collection of prescriptions and directions for pharmaceutical preparations. There is nothing like it in the English language, unless we include the Vade Mecum of Gamgee, published some years ago, but now out of print.

We think it would scarcely be running a risk if some enterprising medical publisher would consult the interests of veterinarians by putting into their hands a good translation of this work of Bouchardat & Vignardon. It would soon be ascertained whether there is room for such a help to practice among the veterinarians of America. We have little doubt of the success of such a venture.

SOCIETY MEETINGS.

KANSAS VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order by President Pritchard at "The Copeland."

Minutes of previous meeting read and approved. Officers for the ensuing year were elected, as follows: President, Dr. Geo. C. Pritchard, Topeka; Vice-President, Dr. S. L. Hunter, of Fort Leavenworth; Treasurer, Dr. W. H. Richards, of Emporia; Secretary, Dr. N. S. Mayo, of Manhattan; Board of Censors, Drs. J. M. Phillips, of Wichita, D. LeMoy, of Fort Riley, and L. R. Brady, of Manhattan.

The resignation of Dr. Orr was laid upon the table until the next meeting. Drs. Hunter, Richards and Brady gave notice that a request would be made at the next meeting for a change of Sec. iv. of the Code of Ethics.

A paper on "Bursattee" was presented by Dr. S. E. Phillips, which was very interesting and was thoroughly discussed. The subjects of bovine tuberculosis, hernia and enzootic cerebritis were brought up and discussed, and cases reported.

Drs. Orr, Brady and Mayo extended an invitation to the Association to hold the next meeting in Manhattan. The invitation was accepted, and it was decided to make the meeting there the "banner" meeting of the Association both in point of numbers and interest. The society then adjourned to meet in Manhattan the second Thursday in March, 1892.

N. S. MAYO, *Secretary.*

NEBRASKA VETERINARY MEDICAL ASSOCIATION.

At the annual meeting of the Nebraska Veterinary Medical Association, held at the Hotel Mock, North Tenth Street, Lincoln, Neb., on September 9th, 1891, the following veterinariars were present: V. Schaefer, A. T. Everett, Wm. M. Taylor, E. A. Noble, G. J. Robertson, A. Sanson, R. Lord, J. Wilson, W. A. Thomas and A. E. Cosford.

The minutes of the March meeting were read and approved. Drs. A. Sanson, V. Schaefer and G. J. Robertson were elected members of the Association, after which the election of officers took place with the following result: President, E. A. Noble; Vice-President, H. L. Rammaciotti; Secretary, R. Lord; Assistant Secretary, A. E. Cosford; Treasurer, G. R. Young; Board of Censors, Drs. Sanson, Lord and Cosford. A. T. Everett, of Hastings, read a paper on the use of cocaine in gastritis, which brought out a lively discussion, after which the meeting adjourned.

R. LORD, *Secretary.*
per A. E. COSFORD, *Assistant Secretary.*

AMERICAN HEALTH ASSOCIATION.

The nineteenth annual meeting will be held at Kansas City, October 20th to 24th, 1891. The Local Committee of Arrangements announces that all the railway passenger Associations of the county have granted a one and one-third fare rate for the round trip on the usual certificate plan, that is:—

1.—Procure a certificate of attendance from the agent at the starting point by paying full fare to Kansas City.

2.—Have the certificate of attendance signed by the proper officer of the Association at Kansas City. This certificate will then procure return ticket for one-third fare. All the leading hotels of Kansas City will give special rates to delegates. Arrangements are being perfected for an excursion into Kansas, as one of the features of the entertainment of the Association. For any information as to the meeting, address

DR. E. R. LEWIS, *Chairman,*
DR. JOSEPH SHARP, *Secretary,*
Local Committee of Arrangements, Kansas City, Mo.

OBITUARY.

DR. V. T. ATKINSON, V.S.

The veterinary profession has sustained a serious loss in the death at Englewood, Ill., of Dr. V. T. Atkinson on Sept. 24. He graduated from the Ontario Veterinary College in 1875, and was located for a number of years in Milwaukee, Wis. He filled with great credit to himself and our profession the position of State Veterinarian of Wisconsin, and Professor of Veterinary Science in the University of Wisconsin for several years, and was probably better and more favorably known to the profession in general than any other veterinarian in his State. A few months since he resigned his position in Wisconsin and removed to Chicago to accept the chief inspectorship of export cattle under the U. S. Bureau of Animal Industry, but the increasing ravages of Bright's disease, from which he had suffered for some time, soon forced him to relinquish his work. Dr. Atkinson was an affable, courteous gentleman of the highest class, a careful, conscientious and earnest veterinarian, whose ability was never doubted by those who knew him. The news of his death will bring regret to his many friends.

ECHOES OF THE CONVENTION.

The West was not so largely represented as it should have been.

The leading advocates in the roll of schools, that yearn for a broader and stronger curriculum in all the veterinary colleges of this country, and strongly deplore the short sessions in some schools, were conspicuous by their absence. Surely this subject should command their attendance and warrant their advocacy.

That the convention of 1892 will require not less than three days sessions.

That our greatest loss was in the lack of time to give

proper consideration in discussions to the excellent papers and reports.

That our standing committees deserve our sincere appreciation for the excellence of their output this year.

That the Bureau of Animal Industry seemed to be the friendly target of all chairmen and some essayists.

That the death of the committee on a central legalized body will be a great relief and cessation of strain from the burdened minds of its members.

That the special college committee had outlived its usefulness, and henceforth the Association will assume general mastery of the situation.

That our Brooklyn friend was visibly affected by the death of so many of his proteges.

That our Association is a body of workers, not of names. The last dead wood has been washed away.

That the exercising greater vigilance in the new membership list will result advantageously.

That the local reception committee surely treated us to a generous indulgence of warm-hearted hospitality. It will bear good fruit.

It proved that the Association's interests are greater than the wishes and desires of any one of its members. Hence the demand for re-election of the former Secretary.

That we convened promptly at 10.30 A.M. the first day.

That the session of the Comitia Minora was well timed on the evening of the 14th, and should be the precedent in all future gatherings.

That the absence of one or two familiar faces was deeply regretted, and their active interest greatly missed.

That the re-election of our faithful Treasurer was a strong indorsement of true civil service.

Where will we meet in 1892? Have you any suggestions?

N. N. S.

CORRESPONDENCE.

ADMISSION TO MEMBERSHIP IN THE U. S. V. M. A.

WATERTOWN, SO. DAK., Oct. 14th, 1891.

Editor American Vet. Review:

SIR: Though not a member of the American Veterinary Medical Association, I wish to say a few words in regard to "the desirable requirements for admission to membership." All progressive veterinarians should certainly take a deep interest in this question of higher education, referred to (editorially) in the October issue of the REVIEW. It must be admitted, on all hands, that it would be a grand thing for the profession if all veterinary schools were to unite in this matter, and have rules laid down for the matriculation course of study and final examination of all future members of the profession. I have watched with deep interest the doings of the U. S. Veterinary Medical Association for some years, and many of us in the far west hail with pleasure the seemingly hearty discussion of this subject at the last meeting, after the action of the 1890 session which admitted members regardless of what course of study they went through, or whether they were taught by one, four, or one dozen teachers. For instance, I have known many graduates from a certain class of schools, who were well educated gentlemen in English and mathematics, but very deficient in the theory and practice of veterinary medicine and surgery, yet they set themselves up as veterinary surgeons. Just imagine a member of the United States Veterinary Medical Association quarantining a fine stallion for ninety days as being affected with syphilis, when the penis was chafed a little from some outward cause, or of being called to examine a valuable horse, pronouncing the animal as being just a little out of sorts, but that in the course of a week would be all right and in the stud again, but alas! the horse was dead in a few hours after.

On being called to examine a large flock of sheep where some of the flock were thin and sickly, through bad care

and feeding, while at the same time they were the bearers of tænia cœnurus and estrusavis, pronounced the trouble the grip. So the sheep died of the grip.

I say that when we find such men members of the United States Veterinary Medical Association, it is high time that steps be taken to bring about a better system of education, or, at least, refuse such men admission to the United States Veterinary Medical Association. Lasting good will result to the veterinary profession of the U. S. if the Association can only be the means of bringing all the recognized veterinary schools to an agreement on this vital question. And if there are schools, or veterinery departments of agricultural colleges, now recognized by the Association, these also should be brought up to the required standard, or at once dropped from the list of competent schools, to teach the principles and practice of veterinary medicine and surgery.

Very respectfully,

D. A. CORMACK, D.V.S.

CORRECTION.

TREVOSE, PA., Oct, 9, 1891.

Dear Doctor Liautard: I notice a slight error on page 385. "The sinews were healthy" should be "the sinuses were healthy," that is the nasal sinuses. As the question of fœtid breath was not fully made out, some might think the fœtor was from the sinuses. Very truly yours,

W. H. RIDGE.

SANITARY BULLETIN.

GLANDERS IN MINNESOTA.*

The following are extracted from the report of the Secretary of the State Board of Health:

*It would be of great advantage if State veterinarians could supply us with similar statements; international sanitary science would gain much by it, and the condition of our live-stock abroad would be then better appreciated.—EDIT.

Report of the work done by the Local and State Boards of Health for the suppression and control of glanders in horses, fron October 1, 1888, to January 1, 1891, a period of two years and three months.

The law under which this work has been done (chapter 200, laws of 1885) was enacted and approved in March, 1885. Glanders had been introduced by importations from all adjoining States and Territories. The attack began immediately everywhere it was found. The details of the combined efforts of State and local boards, up to October 1, 1888, will be found in the previous reports, but I add the general statistics, as abstracted from those reports, as a proper introduction to this one.

GENERAL STATISTICS.

March 9, 1885, *to November,* 1, 1886. (19 *months*)

Counties invaded,	47
Number of localities invaded,	168
Number of horses isolated as suspected,	409
Number of horses killed, being glandered,	227
Number of horses released as unaffected,	162
Number of horses remaining unaccounted for,	20

November 1, 1886, *to October* 1, 1888.

Counties invaded,	76
Localities invaded,	147
Number of horses isolated as suspected,	396
Number of horses killed, having glanders,	294
Number of horses released as unaffected,	93
Remaining unaccounted for,	9

October 1, 1888, *to January* 1, 1891.

Total number Counties in State,	76
Total number Counties invaded,	44
Total number localities invaded,	90
Total number suspected cases,	193

Total number killed,	130
Total number released,	45
Total number died,	2
Total number remain unaccounted for,	16

SUMMARY FOR 1890.

January–December.

Total number suspected horses isolated,	98
Total number of horses killed,	56
Total number of animals released,	32
Total number remaining unaccounted for,	10

SUMMARY FOR 1890.

January–December.

Total number suspected horses isolated,	80
Total number of horses killed,	66
Total number of horses died,	2
Total number of animals released,	6
Total number of horses remaining unaccounted for,	6

The following are obtained from the bulletin for June, July and August, 1891, published by said Board:

	JUNE 1,	JULY 1.	AUGUST 1.
Cases of glanders remaining isolated or not accounted for,	18	37	51
Reported during the month,	27	37	6
Killed " " "	7	21	4
Died " " "	1	0	0
Released " " "	0	2	0
Remaining isolated or not accounted for,	*37	*51	*53

* Most of these are cases exposed to possible infection, and isolated for further observation.

CENSUS OF FARM ANIMALS.

From statistics received from the Census Bulletin in Washington dated August 19, 1891, it is shown that in the States and Territories there were on hand June 1, 1890, 14,976,017 horses, 2,246,936 mules and 49,109 asses; that in 1889 there were foaled 1,814,404 horses, 157,105 mules, and 7,957 asses; that there were sold in the same year 1,309,557 horses, 329,995 mules, and 7,271 asses, and that there died from all causes 765,211 horses, mules and asses during the same period.

The increase of horses from 1880 to 1890 is shown to be 44.59 per cent., as against 44.95 per cent. between 1870 and 1880, and 14.34 per cent. between 1850 and 1870. The increase of mules from 1880 to 1890 was 26.66 per cent.; between 1870 and 1880 the increase was 61.08 per cent., while from 1860 to 1870 there was a decrease of 2.24 per cent.

Of the aggregate number of horses and mules in the whole country June 1, 1890, 86.95 per cent. were horses and 13.05 per cent. were mules. The North Atlantic group of States had the smallest proportion of mules, 2.41 per cent., while the South Atlantic group had the largest proportion, 32.04 per cent., as against 67.96 per cent. of horses.